301 Miscellaneous cheap products of the markets may be worn, but the proper type every woman desires is a large hollow crescentic ornament with wires from each end passing through the perforation in the ear. These are of gold or silver, gold being preferred. A gold pair costs [435] about $35.00.

WOODWORKING TECHNIQUES

335 322 Carpentry, including house building, is the only wood manufacturing process in Cherán except that of a single man who turns out chocolate beaters and that of a family who make broom handles. Aside from house building, carpenters mainly make doors for houses and kitchens, gates in fences, and trap doors. While several carpenters can do other kinds of woodwork, they rarely make furniture, as Cherán carpenters do not feel they can compete with those of nearby Paracho.

511 465 The differences in the economic well-being of towns situated only a few miles apart are sharply underscored by this situation. Paracho is a "poor" village with inadequate lands. A considerable percentage of the population gain their livelihood as hired laborers, traders, carpenters, and weavers. Furniture makers in Paracho receive ordinarily 50 centavos for a chair, which takes perhaps a day to make. Carpenters from Cherán, most of whom are also landowners, feel this is a quite inadequate return. Data from Cherán indicate carpenters receive $1.50 or more a day for their labor. It may be that the traditional specialization of labor may have some influence upon the Cherán carpenter's unwillingness to make furniture, but differences in economic standards undoubtedly play a part.

335 Carpenters have a shop in their yard, usually consisting of a shed with one or two sides closed. Under this is a work bench of heavy planks. The tools are a saw, mallet, chisels, adz, hammer, and plane. Usually the metal parts only are purchased, and handles and plane boxes are made by the carpenter.

As the majority of Cherán houses are of wood, another important activity of carpenters is house building. Only the simplest house construction would be undertaken without the aid of a carpenter, and even the roofing of a stone or adobe structure likewise calls for a

[text continues on p. 436]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
Sierra Tarascans

335 carpenter. Inasmuch as a detailed description of houses, house use, and house furnishings has already been published, no discussion is included here (Beals, Carrasco, and McCorkle, 1944).

322 402 [824] As mentioned previously, one man in Cherán manufactures chocolate beaters of simple type. They are made of madroño wood and are turned on a crude lathe (fig. 9). Power is provided by a bow with the string wrapped about the shaft of the lathe. The left hand is used to work the bow. The lathe rests on the ground, and both the bare feet and the right hand are used to manipulate the tools. The tools and technique are characteristic of Paracho, where a wide variety of turned wood products is made, including bowls, vases, candlesticks, chocolate beaters, salt and pepper shakers, and chessmen.

322 438 Broom handles are made by one family, as already mentioned. Pine logs are split into long staves, which are whittled into a roughly round shape with a knife. The entire product

313 *Plank making:*

433 *Tools:*

434 Oak mallet
Oak wedges
Ax
Two-handled saw

Expenses:

Haulage (ox team, horse, or even burros)
Forest use tax (now 10 pesos for membership in cooperative)

Production (with good workmen):

3 dozen planks per week

Gross profits:

$0.85 to 1.25 per day per person

Comment: Sawing planks requires two men, hence work is done by teams. The gross profits probably are very nearly all net, as deterioration of equipment is slight. Maintaining an average income of the larger size indicated would require 6 long work days a week for the most skilled workers.

Firewood cutting:

Some men at times cut firewood for sale. A burro load brings $0.25 to $0.30.

Tie cutting:

Data on this subject seem unreliable and are omitted.

314 *Charcoal burning:*

433 Beyond the fact that charcoal burners work a 5-day week, no economic data were secured. The little charcoal used in Cherán is sold at 2½ to 3 centavos a kilo delivered.

434

Carpentry:

335 *Tools:*

433 Mallet, saw, chisels, hammer, ax, adz, plane; value about $20–$30

434 *Products, labor, value:*

As each carpenter's job is unique, only a series of cases can be given, as follows:

[435] (a) Large door takes 4 days (10 to 12 hours daily), lumber cost $4, selling price $17, gross profit $13, daily return (not allowing for interest on capital, etc.) $4.25.

(b) Average door takes 4 days (6 to 7 hours daily) lumber cost $4, selling price $12, gross profit $8, daily return $2.

(c) Average door takes 6 days (but this carpenter has rheumatism and cannot work steadily), selling price $5 a door if lumber is furnished, daily return less than $1.

(d) House building or house moving, $1.50 daily (if done under contract, as usual).

Comment: As only carpenters with other members in the family to get wood, do chores, look after animals, etc. can work more than 6 or 7 hours a day, probably $2 a day is top income. Moreover, as work is not steady and as all seem eager to take house building or house

[465] moving jobs at $1.50, it may be assumed that average wages the year around are less than $1.50.

342 574 always assisted by various relatives, who also put pressure on him to hold the event. For the Chávez fiesta one of the wife's cousins provided the music. A relative of the husband [602] provided atole; other relatives of the husband supplied *charanda* or *aguardiente*, as did one of the *compadres* of the husband.

A day or two before the fiesta, the house owner gives cigarettes and matches to the master carpenter. The latter offers cigarettes to various relatives and *compadres* who agree to come and help with the roofing. During the actual work, the relatives of the house owner hand up shakes and nails to the workmen but do not put any shakes in place. The shakes [335] are put in place and nailed by the master carpenter and his relatives and *compadres*.

In the morning of the house-roofing day, two *cohetes* are fired to notify people that the fiesta is to take place. The guests assemble in the late forenoon. The men go to work at the [602] roofing; the wife's female relatives assist in the cooking. When the roofing is nearly finished, *charanda* is circulated among the workmen. The women also make an arch with flowers. This is placed over a cross placed on the ridge pole when the roof is finished. The relatives and helpers now eat, the men eating first. *Compadres* of the husband assist in the serving, the host merely supervising. The men sit on two long logs, and baskets of tortillas, dishes of salt, baskets of tamales, and jars of water are placed on the ground between the two logs. Each man is served a bowl of *curípo*, beef stew with cabbage and chile (pl. 7, upper left). After the men have finished, the small boys are fed in the same way. The women eat in the part of the yard where cooking is going on.

After the meal was over in the fiesta ob- [533] served, the musicians (a stringed orchestra) arrived. They should have arrived before the meal, but the cellist was sick and it was necessary to send to Nahuatzen for another, who was late in arriving. The musicians are served before they begin to play. The women relatives of the host now bring fruit, which they present to the female relatives of the wife. Everyone is then served a bowl of black atole and a piece of bread. The female relatives of the master carpenter now arrive. They are seated on a mat near the space cleared for dancing,

1: Beals E-5 (1940-1941) 1946 NU34 Tarasco NU34
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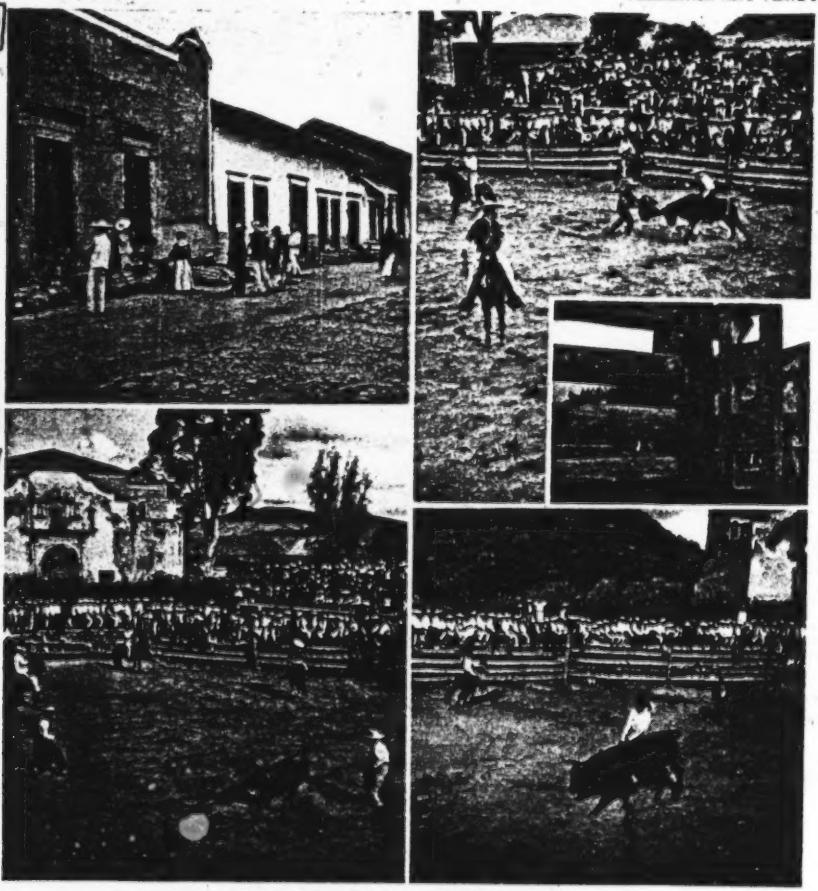

MARKET AND BULL FIGHTING DURING FESTIVAL.

Upper (left): Pottery before being unpacked for the market. *Upper (right):* Riding a bucking bull, the man with cape diverting it from the horses. *Lower (left):* Cowboys (*vaqueros*) throw the bull in the bull ring, then tie a rope around its forequarters. *Lower (right):* Bull riding. *Inset:* Construction of bull ring fence; post on right has holes cut with ax to receive the logs forming the gate.

[End Plate 5]

3:Beals, Carrasco & McCorkle E-5 (1940-1942)1944
NU34 Tarasco NU34
Sierra Tarascans

BUILDING MATERIALS AND THEIR SOURCES

WOOD

313 All wooden materials used in Cherán are pro-
656 duced from local timber. The forests stand al-
[423] most entirely on public lands considered to belong to the town. Formerly, exploitation of any sort was open to all residents who had paid a small fee to an administrative committee. The fee was used to pay federal taxes on the land. Recently, the Department of Forestry of the Federal Government has restricted exploitation of the forests for any purpose other than the collection of firewood to persons having permits. In Cherán this
[474] apparently will mean that persons wishing to cut lumber or shakes (or make charcoal) must join a local cooperative, for the Department of Forestry has refused to give permits to any other group or to individuals.

313 In general, the cutting of lumber is done by
335 specialists. Men who have no land or inadequate land or, in some cases, men who prefer the activity, cut most of the timber and shape it into planks and beams. Shake making is even more specialized, and men who make shakes may do nothing else except look after whatever farm lands they may own. Only a very poor person would attempt to cut the planks and beams needed for a house if he were not a specialist, but anyone might cut poles and stringers used in the roof construction.

313 Woods used in house construction are pine and
137 fir. Pine is most used and two types are distinguished, red (iaríni), the heartwood of large trees, and white, the sapwood of large trees or wood from young trees. From these woods are made shakes, *tejamanil*, "*vigas*" (any piece over 2 inches (5 cm.) in thickness), and planks, or *tablas*.[1]

313 Trees are felled and trimmed with the ax. To
412 cut trees in sections, a two-handled saw is used called a "*sardina*." Splitting is done with oak wedges and an oak maul. Large pieces produced in this fashion are sometimes dressed down with ax or adze. Planks, or *tablas*, are sawed with a long two-handled saw (k'eréri aɾákutarakua). Logs destined for planks are squared with the ax, marked

[1] The measure of length is the *vara*, which is divided in fourths or thirds. Each fourth contains eight English inches (20 cm.); so the *vara* equals 32 inches, or 81.28 cm. Fourths and inches are measured usually with the hand and fingers, but the span is also used.

339 In some towns, dried pine needles ("*huinomo*"), wheat, or oat straw are used in place of manure.
[192] In the Sierra, adobes are called adóbi; in Ihuatzio, on Lake Pátzcuaro, iauárukata.

STONE

316 Masonry is made of assorted-sized rocks brought
333 from a quarry in the west side of the cinder cone on the northwest edge of town. The stone is a porous soft reddish lava, easily broken or dressed roughly with a hammer. It is carried from the
[497] quarry on burros. The rocks are used for all types of masonry walls. Usually large sizes are employed near the bottom and to make the external faces of the wall; smaller stones are used to fill up the spaces, and usually all external surfaces are filled with small stone spalls set in the mud mortar.

316 Large stones used for foundations are a hard gray lava from the arroyo north of town or from the slopes of a cinder cone northeast of town.
[324] The same rock is employed for finished pieces of

[continued on p. 106]

TYPES OF STRUCTURES

WOODEN STRUCTURES

343 Three main kinds of wooden structures are built. These are the "*troje*," or house (trója; in Angahuan, ɬarímba), really a storehouse in use, the kitchen (kosína), and sheds used for storing fodder or sheltering animals. Normally, a mas-
[335] ter carpenter is employed; he usually works for an agreed price and hires a helper.

The "*troje*" is a rectangular structure, nearly square, consisting of one room with a loft over it (fig. 3; pl. 2, upper). The door is always in one of the long walls and there is usually an overhang of the roof, supported on pillars, forming a veranda on this side. Usually the flooring of the first floor is extended to form a floor for the veranda (fig. 3; pl. 4, lower, left).

343 The "*troje*," or house, is elevated on large stones
335 (or stone pillars in some towns), usually 9 in number, one at each corner, one in the middle of each side, and one at the center of the floor. Upon the stones go four interlocking foundation beams, "*polines*" [3] (pɨɛ́kua), and a crosspiece destined to support the middle of the floor, the "*atravesaño de*

[continued bottom page 106]

[3] Also "purines," because they are usually made of heartwood (kata).

324 stone work used as doorjambs, door corners, and bases for the pillars of verandas where these rest on the ground.

TILE AND BRICK

339 Tile and brick are little used. Some tile roofs are seen and tiles are sometimes laid over a shake roof when the latter is worn out. Both tile and [317] brick are made from clay occuring near the town. The dry clay is brought to town on burros. The manufacture is carried on in an old chapel, and firing is in a kiln, both located in the church compound. The quality is poor and the demand is small.

MISCELLANEOUS

353 Adobe-and-masonry walls are commonly fin-
439 ished on the inside and, less frequently, on the
[338] outside, with a coat of sand and lime plaster. This material is always imported. So, too, are the pigments used in whitewash or kalsomine finishes employed to decorate plastered walls.

TYPES OF STRUCTURES

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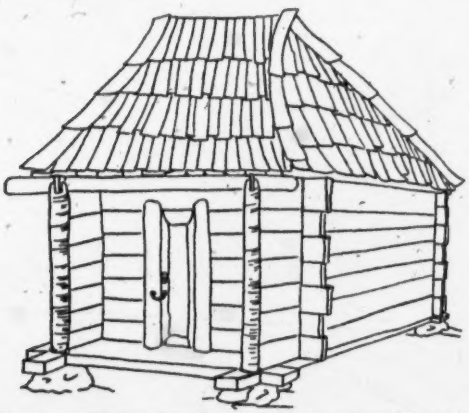

FIGURE 3.—Old "*troje*" in Cherán, said to have been built before the Revolution.

343 *la tarima*" (uanájɨukua). The foundation beams
335 are square, from a third to a fourth of a *vara* (about 8 to 10 inches) in cross section, but the crosspiece is thinner by the thickness of the floor boards.

The two longest foundation beams and the

3:Beals, Carrasco & McCorkle E-5 (1940-1942) 1944
NU34 Tarasco NU34
Sierra Tarascans

343 crosspiece, "*atravesaño de la tarima*," are placed
335 first, then the two remaining foundation beams. The lower beams are notched at each intersection to half their thickness on the upper side; the upper beams are similarly notched on the lower side. Very frequently the front and back beams are notched to receive the ends of the floor planks (fig. 4; pl. 4, upper, left).

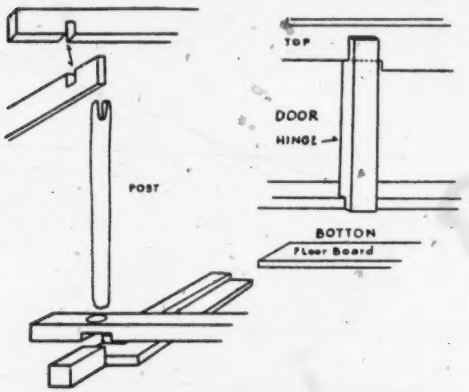

FIGURE 4.—Details of construction of the "*troje*" shown on figure 3.

Upon the foundation beams are placed the floor planks, "*tarima*" (ta*ŕ*újpani) (pl. 4, lower, right). Upon the floor planks are laid one or two more beams, "*planchitas*." One marks the line of the front wall with the door. If there is a wooden floor to the veranda, a second, somewhat heavier beam is laid at the outer edge (pl. 4, upper, right). These beams are morticed to received tenons on the lower ends of the pillars of the veranda and the side frames of the door.

The walls are of logs or, more commonly, of heavy planks set on edge. Both logs and planks are notched to interlock at the corners in the manner of the log cabin of North America and Europe. Assembling planks or logs in this fashion is spoken of as "to chain," "*encadenar*." Two methods of notching planks are used (fig. 5). The number of planks varies somewhat according to the total size of the house. The door is 9 *cuartas* (72 in.) in height, and the front wall up to this point is made of short planks. When four or five planks are in place, giving the required height for the door, the side frames of the door

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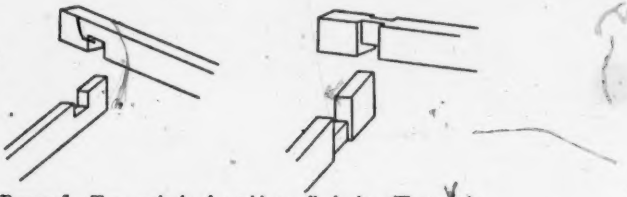

FIGURE 5.—Two methods of notching wall planks. That on the right is more recent and is a tighter fit.

(aŋamárakua) are put in place (pl. 4, lower, left). Each frame has a tenon at the bottom, fitting into a mortice in the *"planchita,"* and a groove at the side to receive the wall planks.

Various methods of completing the doorframe are used. The simplest way is to notch the top of the doorframes to receive a long plank extending across the front of the house. Sometimes this plank is ornamented with carving; in this case it may be cut so the lower part is red heartwood, the upper part white sapwood. More often, the doorframe is finished with one or even two special pieces, *"arco de la puerta"* (uiiſmukua). These pieces are grooved to receive the upper wall planks (fig. 6).

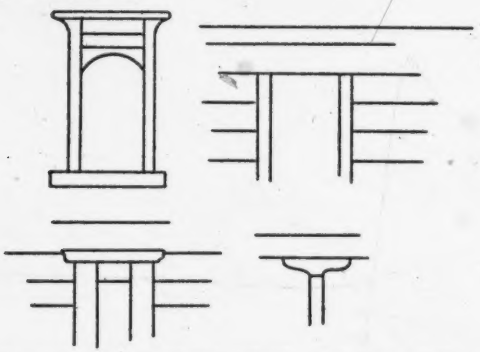

FIGURE 6.—Methods of finishing doorframes, windows, and pillars.

If the veranda is floored, usually four pillars rest on the forward *"planchita."* The pillars are made of heartwood and are usually round but occasionally spindle shaped. Each end has a tenon, the bottom tenon fitting into the *"planchita"* (pl. 4, upper, right), the upper into a capital, *zapata* (fig. 6), or directly into a roof beam, *"arco del portal"* (uanárukua). If no capital is used, the roof beam is often carved into an arch between

[p. 11b]

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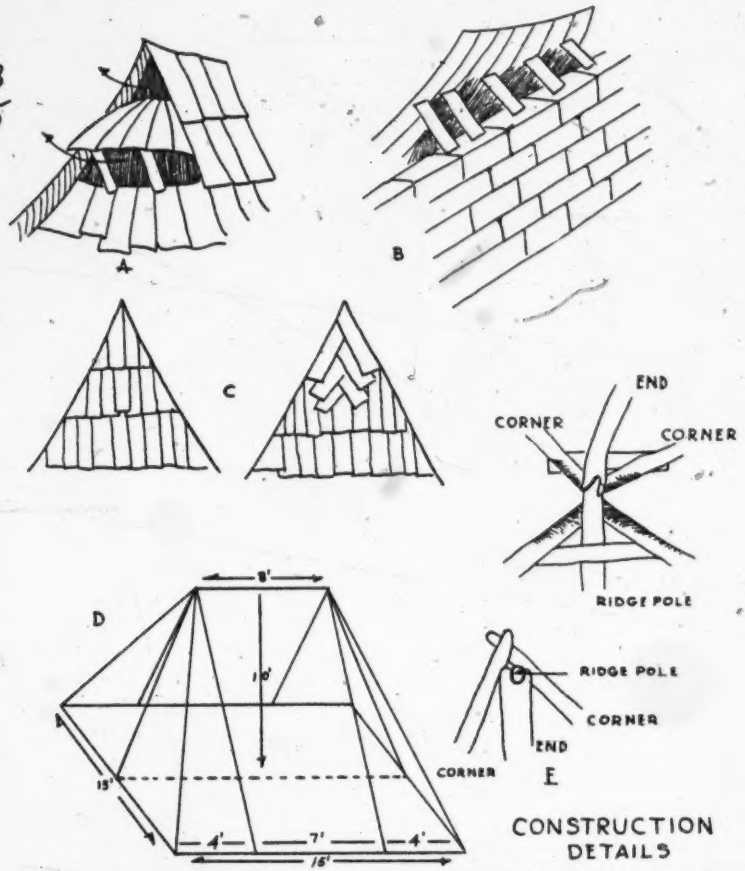

FIGURE 7.—Details of roof construction. *a*, Vent in roof of kitchen; *b*, lean-to kitchen built against an adobe wall with ventilation arrangement; *c*, two ways of finishing shakes at apex of an end roof section; *d*, arrangement of rafters in a small Cherán house; *e*, joining of rafters and ridge pole viewed from outside roof frame; and (above) same seen from inside roof frame.

[p. 12]

343 each pillar. In any case, carved ornamentation is
335 common, often covering roof beam, capital, and even the upper part of the pillars (pl. 5, lower, right). The pillars at each end of the veranda usually have a groove to receive the ends of the side-wall beams.

The topmost two wall planks and the beam above the pillars are usually one *vara* longer than the others, and the ends are cut into a curve and often carved. In addition, a special carved piece of red heartwood called a "*cornisa*" may surmount the usual wall.

The top of the wall and the beam supported by the pillars in front of the veranda must now be carefully leveled again. A morticed cross beam, "*atravesaño del tapanco*" (uanáɔekua), is generally placed in the middle of the room at the top of the walls. The ceiling is laid directly over the tops of the walls, and wooden pins attach the two outer planks to the walls. As the ceiling serves as the floor of the attic, the planks are usually of the same thickness as the lower floor. In one corner, almost always over the veranda, but occasionally inside the room, an opening is left to provide access to the loft or attic.

Upon the "*planchas*" is erected the frame of the roof. First are placed the "*tijeras*" (jauárakua) consisting of pairs of fir poles about 1½ *varas* apart. Half of the upper end of each pole is cut away, and the two are nailed together or, more commonly in Cherán, they are fastened with a wooden pin. The lower ends rest in sockets cut in the "*planchas*." Two pairs of rafters are now leaned toward each other and fastened together. Usually, three groups of rafters of four each are used. At each end of the house another rafter is now placed with a deep notch in the upper end. Within this notch is fitted a ridge pole (fig. 7, *d*, *e*). For further strength, pairs of rafters may be braced by crosspieces nailed to them below the apex of the roof.

In other towns the ridge pole is not used (pl. 5, lower, left). Additional smaller rafters may also be added after the main framework is erected, but in Cherán the house normally has 14 rafters of equal size, 3 groups of 4 and 1 at each end supporting a ridge pole.

Stringers, "*fajillas*" or "*costillas*" (látasa), are fastened horizontally to the rafters. The distance apart depends upon the length of shakes used. Nails are ordinarily employed now to fasten the

343 stringers, but wooden pegs (tarúju) of pine heartwood or wild crabapple, or string of maguey or
335 bark fibers, may be used. The method of attach-
[824] ment is such that each shed of the roof is a separate unit and, by removing the wooden pins, may be lifted off intact in case it is desired to move the house to another location (pl. 5, upper, right). The stringers are crudely made with ax or saw. They are not measured, but after fastening, any surplus length is cut off.

The shakes are laid in two layers with the thick sides facing in opposite directions (fig. 8). They

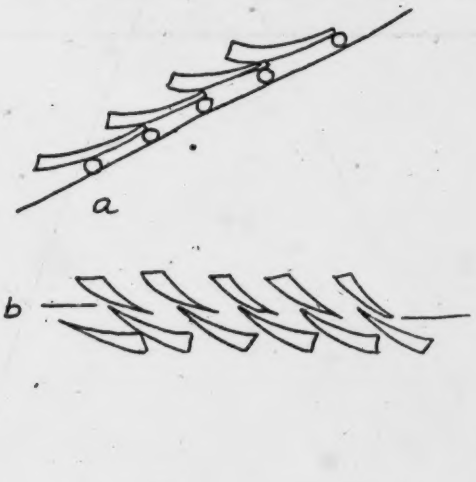

FIGURE 8.—Methods of attaching and laying shakes.

are fastened down now usually with 2- or 3-inch nails. However, they may also be fastened with
[824] small pins (piréⁿa) of red-pine wood, or, preferably, of wild crab apple, *tejocote*. If pins are employed, a hole is made with an awl. The shakes must be put on while green; otherwise splitting is excessive. If it is necessary to use old shakes, they are first soaked in water.

In addition to the above methods, shakes may be held in place by long thin strips of wood placed on top of the shakes. Stones are placed on the wooden strips at intervals. This method is rarely used now on houses, where the steep pitch of the roofs makes it rather insecure, but it is common on the roofs of sheds and stables and is not infre-

[p. 136]

343 quent on the roofs of kitchens. If the much
335 inferior pine shake is used, the nails usually are not driven all the way in and a length of wire is run from one nail to another, a turn being given about each nail (fig. 8, *c*). This may be done with fir shakes also, in which case the nails are driven all the way in after wiring.

The door is usually carefully made and is bought from a master carpenter. The hinges and latch are usually of metal, although the hardware may be crude. If a well-made door cannot be afforded, however, the door may consist merely of loose upright planks fitting in grooves at top and bottom.

A hinged trapdoor is placed in the opening to the loft. This is usually a well-built door bought from a carpenter and fastened by a stout padlock. A ladder gives access to the door. Sometimes the ladder is a notched log (kékua).

Thirty days is considered the minimum construction time for a house.

343 Some further general comments on houses, or
531 "*trojes*," may be made. Houses with carved ornament are called "*trojes labradas*." The parts
335 decorated may include the beam over the front pillars, the piece over the door, capitals, the upper part of the pillars, and "cornices," or special pieces along the upper walls. A "*troje labrada*" usually is carefully made throughout. Undecorated houses, "*trojes lisas*," may be made crudely with only ax and adze as tools. Small "*trojes lisas*" are virtually the only ones to lack a veranda. Occasionally, heavy planks are not used for the ceiling. Instead, light boards are laid over several cross beams, which also support the "*planchas*," or frames, holding the roof.

343 The size of the "*troje*" is taken from the length of the rear wall. Other dimensions vary accord-
335 ing to table 1. Lengths in the table are in *varas*.

TABLE 1.—*Proportions of the houses, or "trojes"*

Length of long side	Length of short side	Height of wall	Rafters	Length of rafters	Shakes
Varas	*Varas*	*Varas*	*Number*	*Varas*	*Number*
5	4½	2½	14	3	400
6	5½	2¾	14	4½	500
7	6½	3	14	5	1,000
8	7½	3	18	6	1,100
9	8	3½	18	6	1,800

343 The measure of the back wall is also the length
335 of the front, center, and back foundation beams and the "*planchitas*." The side-wall measure is the length of the short foundation beams; the floor planks are a little shorter. The top wall planks, cornices, the beam over the veranda pillars, the planks for the loft floor, and the "*planchas*" holding the ends of the rafters are all one *vara* longer than the corresponding measurements at the lower floor. "*Trojes*" of 6 or 7 *varas* are the most common.

483 A "*troje*," or house, may be moved completely to a new location in from 1 to 1½ days. Each piece is marked as the structure is dismantled and then reassembled in the same order. As many of
[211] the men cannot read, the side boards are marked with a symbol for each side and then numbered by a series of tally lines. A master carpenter is hired primarily to supervise the work and to make sure that the foundation frame is level.
[602] Relatives of the owner do the rest of the work and are fed, but receive no pay.

343 A "*troje*," or house, may last 50 to 100 years or more, if not destroyed by fire. Cases where "*trojes*" have lasted longer than 80 years are exceptional. However, the roof shakes must be replaced at intervals. Pine shakes last only about 6 years, fir shakes about 10 years.

342 Tarascan kitchens are of two types. The
335 simpler structure is called "*torita*," or kosína tórueri in Cherán (kosína kukuarékata, in Anga-huan). It has no loft or veranda. The floor plan is rectangular, with the door on one of the short sides. The roof has two sheds (fig. 9; pls. 5, upper, left; 6, upper, left). Subtypes may be distinguished according to the method of supporting the corner posts. In "*cocinas de pie derecho*," the corner posts rest on wooden foundation beams, while in "*cocinas de horcón*," the corner posts are set in the ground. Further differentiation may be made according to the presence or absence of a ridge pole.

The "*cocina de pie derecho*" starts with four foundation beams of heartwood, morticed at the corners and resting on four small stones. Four corner posts (a~~ɣ~~ájtarakua) of heartwood of pine are morticed into the foundation beams. The posts have grooves on two sides to receive the

[p. 14 b]

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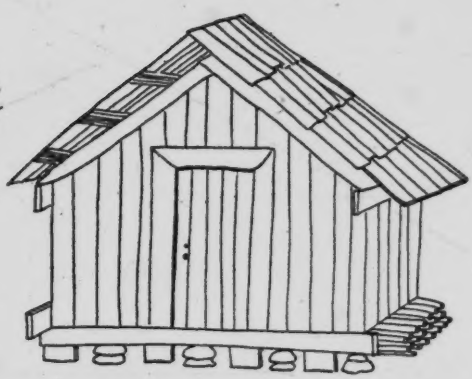

A KITCHEN

FIGURE 9.—Kitchen of simpler style (kosína tórueri).

wall planks or boards. The side-wall planks run horizontally, while those at the two ends are vertical, resting in grooves cut in the foundation beams or made by strips of wood nailed to the beams. The door is in one end (center of a short dimension of the structure) and is framed in the same manner as is the house door.

The tops of the corner posts are notched to receive two "*remates*," planks longer than the planks of the side wall and forming the top of the side walls. The vertical planks forming the front and back walls fit into grooves cut in rectangular rafters supported by the corner posts.

If the roof has no ridge pole, the frame is formed by pairs of rafters resting on the top planks of the side wall and joined together at the top. To the rafters are fastened stringers to which the shakes are nailed. In case a ridge pole (uanájɣíkua) is used, it rests in notches cut in triangular pieces cal d "*burro*" or "*zoquete*" which are placed above the door and the center planks of the rear wall. The rafters then rest on the ridge pole and the top planks of the side wall. Such a kitchen takes about 15 days' labor to build.

In "*cocinas de horcon*," four square posts (aššáma) are set in the ground. Construction of the walls then proceeds in the fashion described above. This type of kitchen always has a ridge pole which is supported by two additional posts, one at each end. The door necessarily is at one side, not in the center as is usual in the "*cocina*

[p. 15a]

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342 *de pie derecho.*" Both types have an earthen floor.
335

The above types are by far the most common and constitute the actual dwellings of the great majority of the Tarascans. Many variations from the described types occur due to differences in the skill of the builders and the economic resources of the owners. Dimensions vary according to table 2.

TABLE 2.—*Relative dimensions of kitchens in varas*

Short side	Long side	Height of wall	Length of rafters	Number of shakes[1]
4	4½	1½	3	600
5	6	1¾	3¼	1,000

[1] This figure applies if a double layer of shakes is used; often only one layer is used, in which case the number of shakes is halved.

The more elaborate of the two types with its foundation beams, morticed corner posts, and roof without ridge pole, is said to be relatively modern. Formerly, no foundation beams were used; the corner posts were set in the ground, and a ridge pole was always present. The stringers were fastened to the rafters with wooden pins, while the shakes were fastened with wooden nails. Another way of fastening the shakes was to let the stringers project. Another stringer was then laid on the top of the shakes and the two tied together at the ends. Alternatively, the upper stringer might be held down with rocks.

Another and better type of kitchen is known as trója kosína or kosína uirípiti (round kitchen),[4] and more closely resembles the house, or "*troje.*" The ground plan is square. The construction differs from the "*troje*" in only a few details. There is no loft and no veranda (pl. 6, upper, right). Two horizontal planks are morticed into the rear of the side walls and extend across the back of the kitchen to form two shelves. These shelves often occur in simpler kitchens, too.

The absence of the loft floor requires some change in the roof frame. Resting upon the uppermost planks of the wall are several cross beams. The simplest way is to place three beams running from front to back, one in the center and

[4] The term round is also applied to a type of square house (see p. 17). After much questioning, Carrasco was told the term round is used because the structures are square rather than rectangular. This sounds like a rationalization. Round houses probably occurred anciently, although apparently they were not common (see p. 81).

[p. 15 b]

3:Beals, Carrasco & McCorkle E-5 (1940-1942) 1944
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342 one over each side wall. Upon these are placed
335 the "*planchas*," and construction of the roof proceeds as in the "*troje*." In other cases, four squared beams are used. Two run from front to back, while two shorter beams run from the middle of each side wall to the nearest long beam (fig. 10). The "*planchas*" again rest on these. As in the "*troje*," the roofs have four sheds. A ventilator may be built in one shed (fig. 7, *a*, *b*).

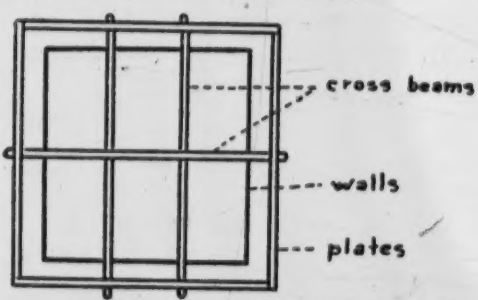

FIGURE 10.—Plan of ceiling in an elaborate kitchen (trója kosína).

The floor of these "round" kitchens is usually of earth owing to the character of the fireplace. In Paracho, however, a raised fireplace, called a "*chimenea*" (fig. 12), permits a wooden floor. Two additional foundation beams are placed as in figure 11. A wooden floor is then laid, leaving a space one meter square open for construction of the fireplace.

This type of kitchen varies from 4 to 7 *varas* in its longest dimension. As in the house, the topmost wall planks and the "*planchas*" are a *vara* longer than the other wall planks.

Although the kitchens, particularly the simpler type, are relatively inexpensive, they still may cost more than a man may be able to pay. In this case, he may construct one without the services of a carpenter. As a result, one sees all sorts of approximations of the types described. Perhaps most common is a structure in which the roof is supported by four posts set in the ground and the walls filled in with any convenient material—planks, lumber fragments, old shakes, and so on. A lean-to against a wall may also be used (fig. 7, *b*).

In Angahuan, and to a lesser extent in Parícutin and San Juan Parangaricutiro, storehouses (called úmutakata in Angahuan) are built on four posts some two meters (6 ft.) in height. Often these

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Sierra Tarascans

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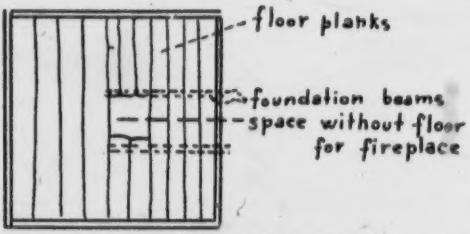

FIGURE 11.—Plan of floor of an elaborate kitchen (seen only in Paracho).

structures are at the entrance to the lot, but may also be inside (pl. 6, middle (right) and lower (left)). Two beams connect pairs of posts and a floor of planks is laid across these. Upon the planks rest four "*planchas*," supporting a roof similar to that of the "*troje*." The entrance is either through the floor or one of the gable ends. The floor plan is always rectangular.

[354]

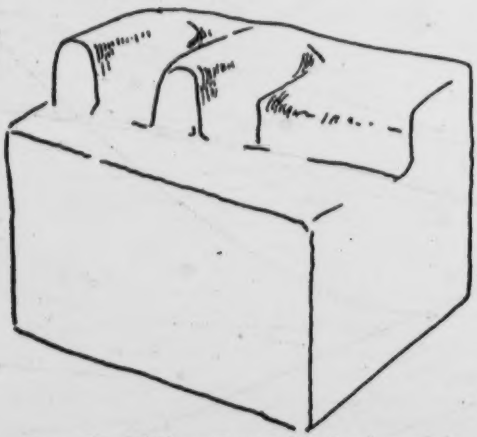

FIGURE 12.—A "*chimenea*," or raised fireplace (seen only in Paracho).

In Angahuan, the lower part of these structures is often walled and the structure then serves the function of a "*troje*." Often the walls are made simply of shakes or old boards, but sometimes the posts rest on foundation beams and the wall planks are well fitted (pl. 6, lower, center). In this case, the floor plan is square and, except for this, the structure is a "*troje*." Such square structures have a wide distribution and are called "*trojes*" in some towns, such as Paracho, but in Parícutin

[p. 16 b]

342 they are called round houses (k'utá uirípiti). The
335 latter term is known but not used in other towns.

In Capacuaro occur storehouses, called "*huacal*" (uakáli), made of four walls of interlocked logs or planks with a simple roof of two sheds (pl. 6, lower, right). In some other towns, the same type is made in the fields. The structures are used to store wheat before thrashing or to store straw for animals.

Occasionally, houses built on the edge of the street have the street wall of stone or stone and adobe, while the remaining walls are of wood.

In the Lake Pátzcuaro and La Cañada towns, a few old "*trojes*" are found. They resemble those of the Sierra but, except for two cases in Janicho, the roof is different. At either short end a triangular structure of adobe, "*capisayo*," is erected on the wooden walls and sustains a ridge pole. Rafters run from the ridge pole to the "*planchas*," or plates, in front and back. Stringers attached to the rafters support a roof of either shakes or tile (pl. 6, middle, left).

ADOBE-AND-MASONRY HOUSES

342 In its simplest form, the house with walls of
333 stone (ɛanɛákata), "*casa de pared*," or stone and adobe, has one rectangular room with the door on one of the long sides. Occasionally, houses of more than one room are encountered or even of two stories. The latter seem very recent and commonly belong to Mestizos.

Masonry is always used as the foundation, "*relleno*," of an adobe wall. In some cases,

342 and a hammer are the other needed tools. As the
333 wall increases in height, a crude scaffolding is erected, usually on each side of the wall, and the mortar is placed on a small portable platform of planks (pl. 7, upper, left [5]).

[338] Adobe-brick walls are frequently finished with a coating of adobe plaster, plentifully mixed with animal dung if the wall is to be used for a house. Somewhat less frequently, a lime-plaster coating is used to cover the wall.

342 In Cherán, usually only front and side walls of
335 houses are made of brick or masonry. The back wall, and sometimes one side wall, will be of upright planks fitting into grooves in horizontal beams at top and bottom. Doors have door-jambs of stone and the doorposts rest on a stone base with a mortice to receive a tenon on the lower part of the post. A lintel at the top is morticed to the doorposts and extends beyond them on either side, being surrounded by masonry or bricks and supporting the wall if it continues above the door. Windows are made in the same way, but no stone is used.

Upon the leveled tops of the wall are laid wooden plates, or "*planchas*" (in this case also called "*plantillas*"). Across these are square joists, extending 2 or 3 feet beyond the walls. The ends are ornamentally carved. Across the ends of the joists, a second plate is sometimes laid and fastened to the joists with wooden pins, which sometimes pass through the joists and extend below them. The rafters are set into sockets

[5] The making of adobes and tiles will be described in another paper.

[4.18a]

3:Beals, Carrasco & McCorkle E-5 (1940-1942) 1944
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342 in this plate, or may be pinned directly into
335 sockets in the joists. The frame consists of a ridge pole supported by pillars from the walls and joists. The rafters are in pairs, resting on the ridge pole. In large structures with tile roofs, additional pillars or braces may support the rafters (pl. 7, upper, right). The ends of the gable roof thus formed are usually closed with shakes. Sometimes a floor is laid over the joists to form a loft. Yet another common variant is a shake roof with four sheds similar to the roof of the "*troje*" (pl. 7, lower, left).

The wide eaves of this type of house usually extend to the edge of the sidewalk, a very convenient arrangement in a rainy country, although the purpose probably is to keep moisture away from the walls. No other feature so strikingly sets off the architecture of central Michoacán from that of the remainder of Mexico than do these wide eaves (pl. 8, left). Structures fronting on the plaza often have a corridor with supporting pillars.

342 Many structures of masonry and adobe brick
[177] are approximating Mexican architecture in their ground plans, particularly if they are of any size. Usually two or more large rooms front on the street. A large entry way with double front doors, wide and high enough to permit the passage of animals, usually will be between two of the rooms. On the side facing the inner yard, there is a wide earth or brick-floored veranda (fig. 14). Doors and windows may open on both the street and the yard. Floors of such structures

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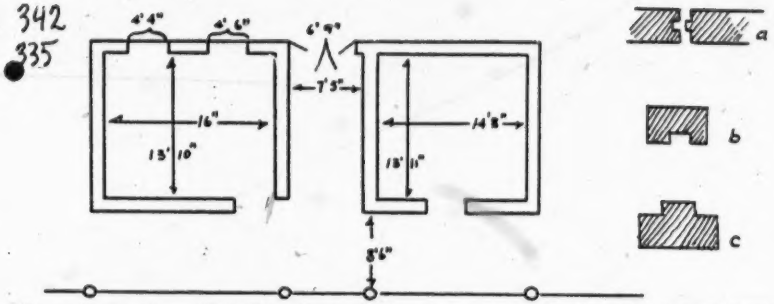

FIGURE 14.—Plan of house of Pedro Chávez, Cherán. Combination masonry and wooden walls. *a* shows tongue-and-grooving of vertical plank walls. *b* and *c* show notching of beams at top and bottom to receive wall planks, and (*c*) floor planks.

[p. 18c]

342 occasionally are of brick or cement but ordinarily are of wooden planks. There is also usually a kitchen of wood in addition to the masonry-adobe structure. The latter is more difficult to maintain in order and there is a reluctance to smoke up the interior.

423 Certain customs connected with the erection of masonry-adobe walls should be mentioned.
333 Often a division wall is erected between the forward part of two lots which may later be used as a house wall by either or both lot owners. If the cost of such a wall is shared, half the wall rests on the land of each owner. As frequently happens, however, one householder pays all the cost. In this case, the entire width of the wall is on the land of the person not contributing money. The latter, however, may use the wall as part of a house wall at any later time.

342 In the Lake Pátzcuaro and La Cañada regions, house walls are almost always of adobe on a low
333 stone-masonry foundation. Usually the houses
335 have a veranda or corridor. The walls are erected as described. Five heavy planks then serve as plates, "*planchas*," one on top of each wall and one supported by pillars at the outside of the veranda. Sometimes there are capitals, *zapatas*, between the pillars and the plate. The plates at the two sides extend from the wall to the pillars, or the side walls are extended to the edge of the corridor. In this case, no corner pillars are needed (pl. 7, lower, right).

Upon the plates on the two shortest walls is erected a triangular adobe structure, "*capisayo*" (kenzéjtakua). Across the other plates are laid joists, in the more elaborate structures extending well beyond the rear wall and edge of the corridor, and carved at the ends. If the joists do not extend beyond the wall and corridor, the plates on the short sides may go only from the outer edge of the corridor to a point part way to the opposite side of the house. In this case, the "*capisayo*" may be partially an upward extension of the house wall.

342 If the loft space is not used, shakes may be
335 laid on the joists to form a ceiling; often this is done only over the veranda. Alternatively, a plank floor may be laid.

Should the house lack eaves, two heavy planks, "*pisos*," are placed on the ends of the joists. Upon these rest the rafters. If the eaves pro-

342 ject, then the "*pisos*" are usually higher, sup-
335 ported by the adobes of the "*capisayo*," and another heavy plank is placed on the ends of the joists. The space between the wall and the ends of the joists is usually covered with shakes. The lower end of the rafters is supported by the "*piso*," the upper by a ridge pole (pirijɛ́akua in Ihuatzio). The latter in turn rests on two wooden pieces, "*burrito*," or "*zoquete*," forming the top of each triangular adobe "*capisayo*" (pl. 7, lower, right).

Although the preceding roof type is the most common, simpler types are known. In some cases, one wall is lower than the opposite wall and a single shed roof is formed by sloping joists. It should be observed that similar types of construction are used in La Cañada and at Tarecuato. Moreover, examples of all types of stone-
[171] and-adobe construction may be found in nearby Mestizo towns.

SUPPLEMENTARY STRUCTURES

351 Supplementary structures consist of fences,
333 gates, and sheds for storage or for shelter of animals. Fences facing on streets are the most elaborate as a rule. They may consist of dry rock walls made by the house owner, but in the central parts of town are almost always of masonry or masonry topped with adobe brick (pls. 2, lower; 3, right). They are called sérka. The construction differs in no way from that for house walls. The top is covered with shakes held down with a wooden stringer and stones. Adobe fences are most common in the Lake Pátzcuaro and La Cañada regions. Often fences of poles (uaɾ́ótakua)
351 are employed to divide lots, or especially in the
335 outlying sections of town, along the streets (pl. 3, left). Poles may also be used to raise a masonry or adobe-brick wall somewhat higher, in which case a row of shakes will usually be employed to give privacy as well. No orthodox construction is used for pole structures. One attractive but not very practical fence was made of dry cornstalks bound neatly at top and bottom to small poles. A fence of upright poles or planks is called ɾirindikua.

Gates are usually quite elaborate and serve to close openings to the street. Commonly, the gate is a well-made door, purchased from a carpenter, and swinging from two substantial upright posts. These posts are set in the ground and in addition

351/335 are connected by a piece of wood at top and bottom. Almost invariably they have a small gable roof (úmutakata in Angahuan, the name of the storehouses on posts already described). Two pieces are supported by the gate posts at right angles to the gate. The ends of these are connected with two pieces which support rafters. Construction is like that of a gabled house roof in miniature. Sometimes a light floor is laid, and the space is used to store maize husks for tamales or some similar, not very valuable, material. The gate roofs keep the gate from rotting or warping from rain. They are an inevitable part of the Tarascan landscape and may be seen sometimes in open fields over the entrance to the field even though there be no gate (pls. 3, right; 7, lower, left). In the Lake region, they are roofed with tile, a practice sometimes seen elsewhere (pl. 7, middle, right).

In some cases, however, simpler constructions are used. The gate may simply be upright planks resting in a groove at the bottom and held by cord loops at the top. In the fields, gates are often made by planting two posts with holes chopped in each to receive bars. Such gates are sometimes seen in town also. They are called "*agújas*" in Cherán, but in Parícutin they are called jarášurita.

[continued on p. 20b]

SPECIALIZATION AND DISTRIBUTION OF SKILLS

463 While a high degree of specialization is characteristic of the Tarascans in comparison with most primitive people, such a term is always relative. Actually almost any man in Cherán is first of all a farmer; only landless men, which means also poor men, are not farmers. Probably most Cherán men are fairly skilled with an ax, sufficiently so to do a reasonably competent job felling a tree, trimming poles, cutting fence posts or ties, and hewing out rough timbers. On the other hand, to make a living at woodworking occupations requires more skill and speed than would be possessed by many men. In the same way, any man might do a fair job of building a dry-stone field wall, but he would not be as fast as a specialist, nor could he put up a masonry wall or lay adobe bricks in a fashion that would meet Cherán standards of fitness. Nevertheless, these facts make an absolutely correct assessment of the

[p. 20a] [Continued bottom of page 20b]

343 Sheds are usually built leaning against a house
335 or wall. They consist ordinarily of only a sloping roof of shakes supported by a crude home-made framework. The upper end of the roof rests against the house or wall, the lower end is supported by posts. A great variety of crudely built structures is found, serving for hen houses, barns, storage of fodder, or toilets. Crude roofs called "*pestaña*" are also built over entrances to houses and kitchens (pl. 2, upper).

343 Many houses have pigpens made of poles.
231 These often have an entrance directly from the street which can be closed from inside. As a rule pigs roam the streets during the day. At night they must be penned carefully, especially in the outskirts of town. Otherwise, coyotes may kill them.

354 In some house yards there are large domed ovens, used primarily for making bread. They
[427] are often rented to bakers who do not have ovens. The construction is mostly of adobe but sometimes stone is used about the entrance and in foundations. A rough shake roof supported by poles protects the oven from the rain.

343 Temporary shades (ónjetarakua) are built of poles and covered with branches and grass for use in weddings and fiestas.

SPECIALIZATION AND DISTRIBUTION OF SKILLS

463 distribution of skills difficult. The following list of specialists, then, merely gives those who make a major part of their living from the specialty indicated. In some cases, the individuals no doubt get all their living from their professional occupation; in others, they either farm themselves, do farm work, or are employing farmers.

Carpenters	9
Masons	5
Brick and tile makers	2

The above represents a fairly accurate census of those men in Cherán who have special skills and who would be hired for work in their field by others if possible. To put it another way, the average man would recognize that one of these specialists would do a more competent and finished job than he could do himself; consequently, any ordinary man would make some sacrifices to employ these

335 In the Sierra, a master carpenter is usually
465 employed on a contract basis. Often the carpenter employs a helper. In addition to their pay, the carpenter and helper are given their food. Adobe or stone structures are also built under contract, but in this case the workmen are not fed.

PRELIMINARY NOTES ON THE

DISTRIBUTION OF TYPES

341 known distribution of types within Tarascan
184 boundaries:

Mostly wood	*Mostly masonry-adobe*	*All masonry-adobe*
Ahuiran	Cuanajo	Cucuchucho
Angahuan	La Cañada (all towns)	Huecorio
Arantepakua	Puacuaro [2]	Ihuatzio
Aranza	Tarecuato	Janicho
Capacuaro	Uruapan [1] [2]	Jarácuaro [2]
Charapan	Zacápu [1]	Naranja
Cherán	Zamora [1]	Pareo
Cocucho		Pátzcuaro [1]
Corupo		Quiroga
Nahuatzen		Santa Fé
Nurió		Tarejero
Parscho		Tecuena
Parangaricutiro		Tiríndaro
Paricutin		Tzentzénhuaro
Patamban		Tzurumútaro
Pomacuarán		Yunuán
Quinseo		
San Felipe		
San Lorenzo		
Sevina		
Tucutacato		
Tingüindin		
Urapicho		
Zirosto		

[1] Indicates Mestizo town showing influence of styles.
[2] Indicates shake roofs common.

[p.21b]

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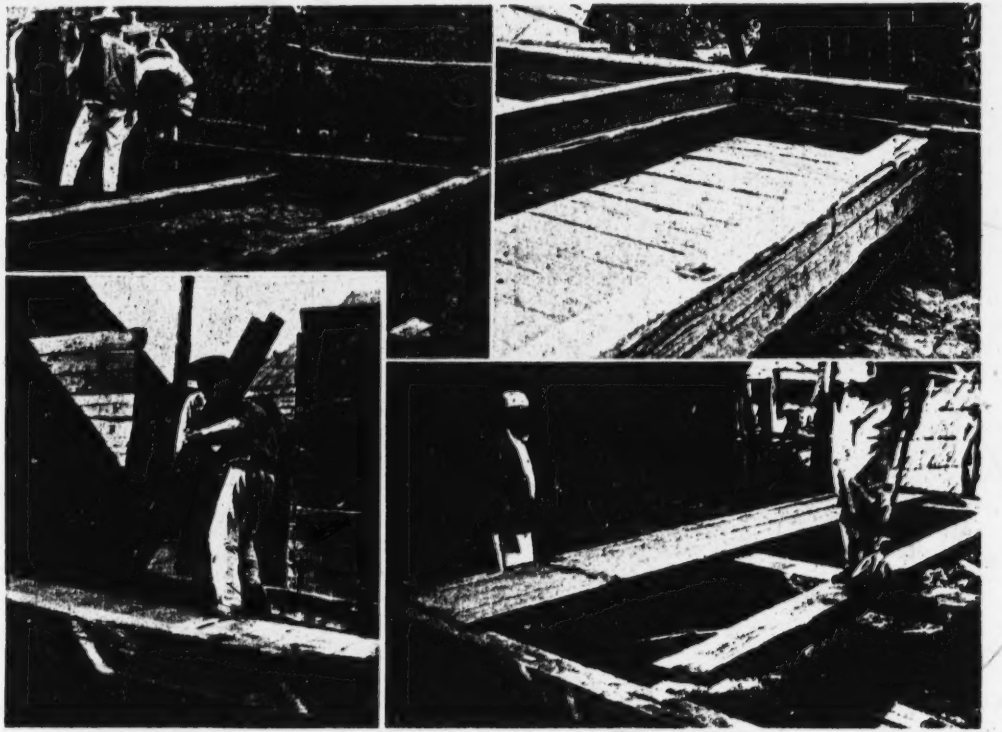
[End plate 4]



Upper (left): Leveling the foundation beams for a house. *Upper (right):* The "*planchas*" in position. Two side wall planks and one front wall plank in place. Notice the mortice for a pillar in the front "*plancha.*" *Lower (left):* Placing one of the doorframes. *Lower (right):* Laying the floor boards of a house.

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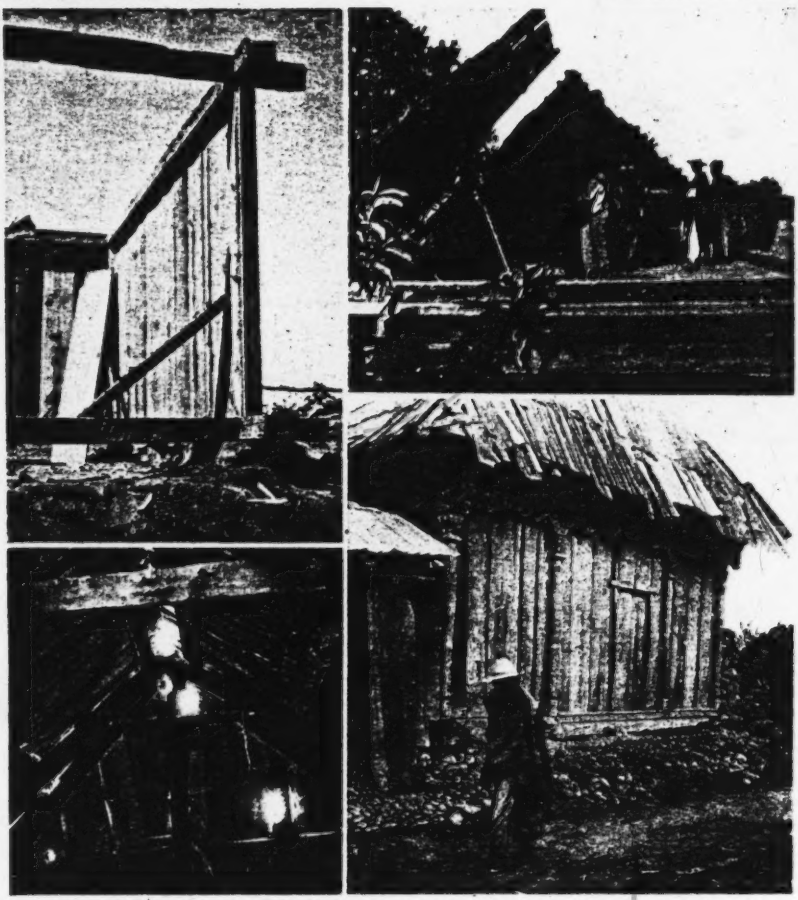

Upper (left): Simple kitchen under construction in Cherán, "*sic derecho*" type. *Upper (right):* Two roof sections in place in process of moving a Cherán house. *Lower (left):* Arrangement of rafters in Paracho house without ridge pole. *Lower (right):* Old house in Paracho of unusual style. The elaborate carving and absence of capitals of the pillars should be noticed. The walls are of vertical planks rather than the normal horizontal construction.

[End plate 5]

3: Beals, Carrasco & McCorkle E-5 (1940-1942)1944 NU34 Tarasco NU34
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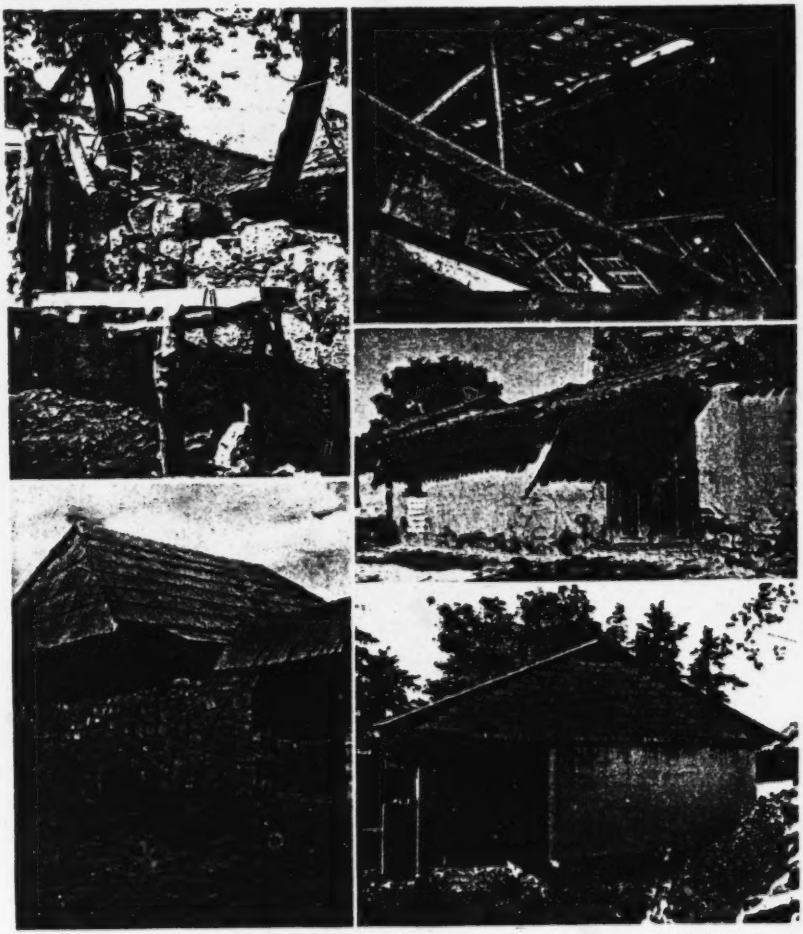

Upper (left): Mason at work in Cherán. *Upper (right)*: Fairly elaborate roof construction at Ihuatzio typical of adobe structures. *Middle (right)*: Gate roofed with tile, Ihuatzio. *Lower (left)*: Stone house at Paracho with shake roof of "troje" style. *Lower (right)*: Ihuatzio house with veranda, seen from one end. The "*plancha*," or plate, is carried clear across the house in this case and doubled at the ends. The wooden support, or "*burrito*," for the ridge pole is clearly seen.

[End plate 7]